

repeaters, but like many things too much of a "good thing" is not necessarily good. The people concerned in many cases appear to have Verbal Diarrhoea, and say nothing over a long period. I hope you as a Novice are not foolish enough to fall into this trap, as it is hard to get out of it.

Over the next few months David Down and I hope to present a number of projects and general hints which it is hoped will help Novices and Novices to be. It is hoped that the articles will be of interest to all newcomers, and that you the readers will write to David and me with your suggestions on how this column can help you. Do you think that the name of the column should be changed or is it okay as is? When Novicing is next written about in this column in about two months time the first exam will be over and the general conditions applying to Novicing should be much clearer than they are at the moment. If you have queries on Novicing please write to me and I will endeavour to get the correct answers so that confusion does not reign supreme. Cheerio for now and good luck in the exam.

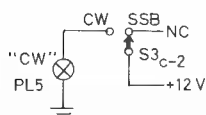
Commercial Kinks

with Ron Fisher VK3OM

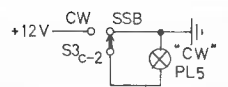
3 Fairview Ave., Glen Waverley, 3150

MODIFICATIONS TO THE YAESU FT75

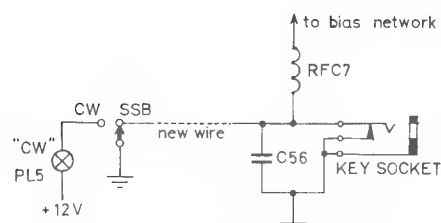
The little Yaesu FT75 transceiver seems to have carved itself into a special niche for many amateurs. Being both small enough and light enough to fit into the family car without encroaching too much on passenger space, its success as a mobile rig is easily understood. Bob Martindale VK3BMA has come up with a few ideas that add to the operating convenience of this unit. Originally published in "The Radio Bulletin", journal of the Eastern and



(a) AS PER CCT DIAGRAM



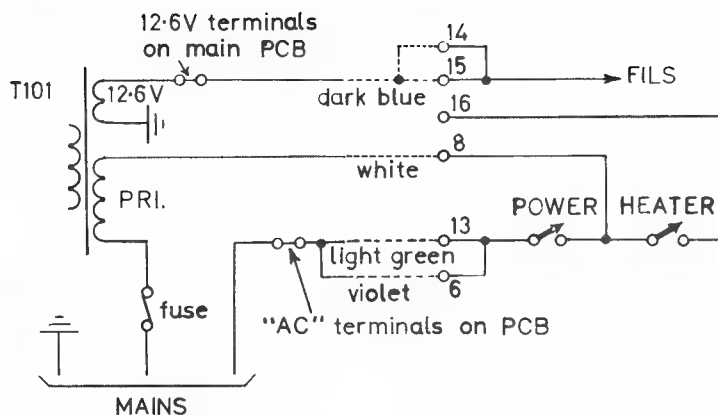
(b) AS ACTUALLY WIRED



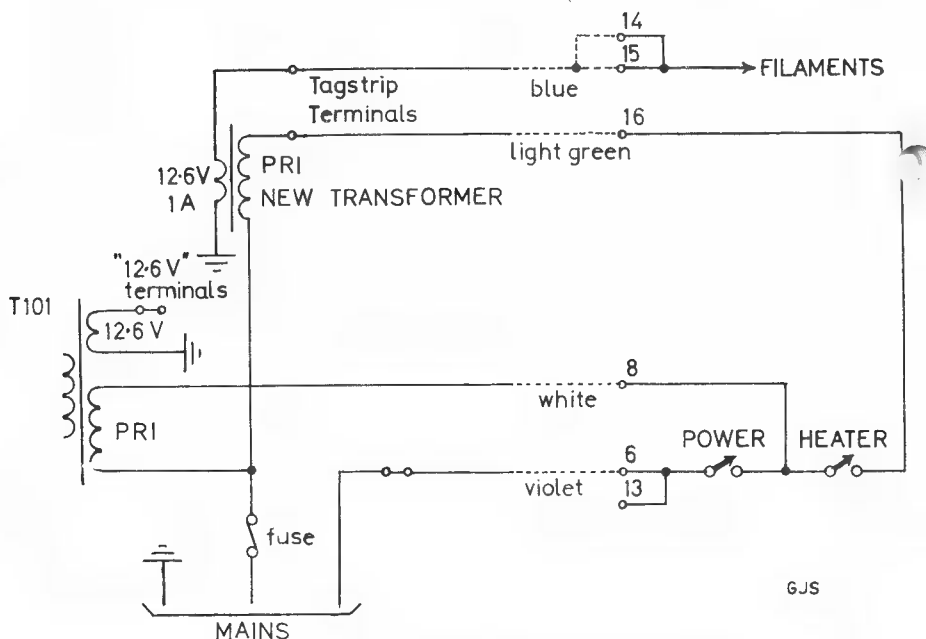
(c) AS REWIRED TO ENABLE KEY TO BE LEFT PLUGGED IN IN SSB MODE

CW SWITCH WIRING - FT75

GJS



UNMODIFIED FILAMENT WIRING - FT75 / FP75



MODIFIED FILAMENT WIRING - FT75 / FP75

GJS

Mountain District Radio Club, Bob has kindly passed it on for inclusion in this column.

"Described here are three modifications I have performed on my FT-75. Performance of the unit is unaffected but operating is made more convenient.

1. Relocation of the PA bias adjusting pot

This potentiometer is mounted on the chassis of the transceiver and access is obtained by removing the top cover. The suggested alternative is to drill a hole in the top cover to enable entry of an adjusting tool. I was not too keen to drill a hole in the case, so a position on the rear panel was selected to enable direct access. The pot was mounted just below the VFO socket on the rear.

The hole in the chassis from which the pot is removed is then fitted with a grommet and the wires to the pot are passed through it after being extended.

Adjustment of the PA bias is now much

more convenient, particularly if the rig is frequently alternated between home a mobile operation with the DC-75 mob. power supply as in my case.

2. Rewiring of the filament supply to the driver and PA tubes

When operating the FT-75 on the FP-75 AC power supply there is no provision for switching off the driver and final filaments during lengthy periods of listening only.

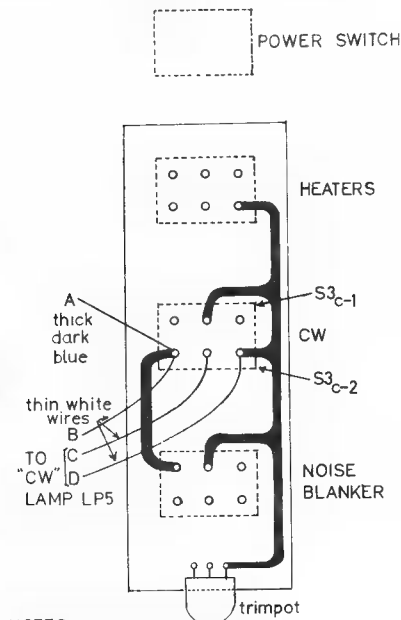
Reference to the circuit diagram produced the following solution: The cable between the FP-75 and the transceiver has two conductors connected in parallel for the switched mains return to the power supply (the light green and violet coloured conductors). If one of these is unsoldered at the connector and inside the FP-75 a spare conductor is now available in the cable.

This spare conductor is used to provide mains voltage from the HEATER switch to the primary of an added filament transformer.

The main filament supply conductor is transferred to the secondary of this new transformer.

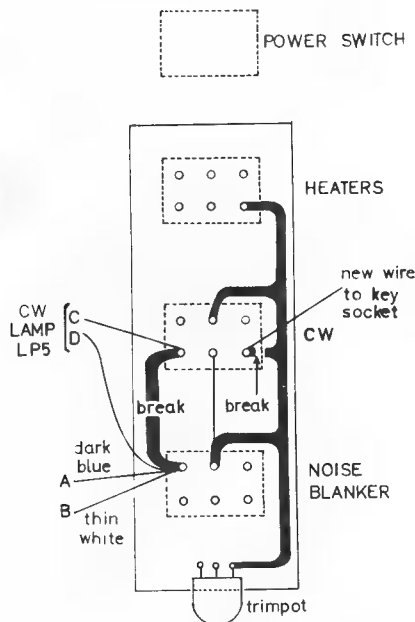
3. Rewiring of the CW switch

Due to the method by which the FT-75 is keyed for CW transmission and the arrangement for plugging in the key, the rig cannot be operated in the SSB mode while the key is left plugged in unless the key is held depressed. I prefer to leave the key permanently plugged in and select the mode of operation with a switch.



- NOTES
1. Only relevant details shown.
2. Viewed from underside of transceiver.

UNMODIFIED CW SWITCH WIRING-FT75



MODIFIED CW SWITCH WIRING-FT75

Again reference to the circuit diagram produced a simple solution. S3c-2, the switch section controlling the 'CW' lamp PL5 is rewired according to the circuit diagram. The switch now places a short circuit across the key socket when the CW mode is not selected and the PA bias is now unaffected by plugging in the key."

I am sure that owners of the FT75 will find Bob's ideas worth a try.

PROJECT AUSTRALIS

with David Hull, VK3ZDH

The 1975 International AMSAT-Oscar Experimenters Conference was held in the Goddard Space Flight Centre, Greenbelt, Maryland, USA over the period 21st to 24th March, 1975. It was convened to define the next satellite(s) in the OSCAR series and to decide the responsibilities of the national groups involved towards developing these satellites.

Those who attended included Larry Kayser VE3QB and Bob Pepper VE2AO from AMSAT Canada, Karl Meinzer DJ4ZC from AMSAT Deutschland, Chuck Swedblom WA6EXV and Dick Kolby K6HIJ from the San Bernardino Microwave Society, Jan King W3GEY and Perry Klein K3JTE from AMSAT HQ and Dave Hull VK3ZDH from the WIA Project Australis.

The principal area of discussion was Oscar 8 and the possible launch vehicle/orbit opportunities for this project. Without going too much into the alternative possibilities, which included a joint VK/VE satellite in an Oscar 6/7 orbit, it can be stated that the conference decided to go ahead on development of an AMSAT phase III advanced spacecraft for launch in mid-1978 and to concentrate all effort to that end.

The development is constrained by the launch date of the last Itos launch on the Delta 2910, a call-up mission with a mid-1978 target. Failing this launch the Titan 3C/377 Military launch could be considered as could the Space Shuttle scheduled for an expected first launch in June 1979. The orbit possibilities of these launches are 900 miles, Sun Synchronous (as per Oscars 6 & 7) for the Delta, Geostationary Synchronous for the Titan, and low altitude low inclination for the Shuttle. None of these orbits was considered entirely satisfactory for the Amateur Satellite service worldwide at our present state of development.

An optimum location for the Geostationary satellite was impossible to find; it would serve only one area for long periods at a time. The 900 mile orbit had been fully explored with Oscars 6 and 7 and there seemed little point to a lower shuttle height orbit. The only alternative seemed to be an initial launch into a 900 mile orbit with a subsequent in-flight manoeuvre to raise the apogee of the satellite to such a height that a considerable radio range would result for much of the orbit.

What the conference had in mind was to provide a viable alternative to the 20 metre band without any of the propagation problems of the HF bands. This in-flight manoeuvre would require the spacecraft to be fitted with an Apogee Kick Motor (an AKM, a small internal rocket motor) and this would be a completely new development for the Oscar Series. This motor would be fired by ground control some orbits after launch at a time determined by the orbit mechanics.

To this end, and to further advance our command techniques, it was decided to fly, also for the first time, an in-board computer. This unit would integrate the Command, Telemetry and general house-keeping of the whole spacecraft. The Computer would interface directly with Ground Station Equipment (GSE) computers in the worldwide chain of command stations. The Spacecraft computer would also arrange the transmission of telemetry in any format (RTTY, CW, BCD et al) as decided by the software fed from the command stations. Commands and operating schedules would also be decided in like manner by ground loaded software.

All this is an interesting technical exercise from the participant point of view, but what about the Oscar users?

The principal transponder would be a linear unit of 150 kHz bandwidth with reception either in the 2m or 70cm band and transmission in the alternative (70cm or 2m band). The exact choice of uplink, 2m or 70cm, and thus downlink, was not decided and the conference chose to refer this choice to a poll of interested parties.

In general, 'E' and VK with some of the W's favoured 2m up and 70cm down; the DJ and AMSAT HQ representatives were in favour of the alternative (as in Oscar 7). **Project Australis would appreciate feedback from VK satellite users on this question.**

Two or three Beacons will be flown. There will be a beacon at each end of the passband and, possibly, a 2304 MHz beacon if the present problem with the FCC on this question can be overcome.

It is anticipated that the AKM will push the satellite into an Initial apogee over the North Pole of 7.2 earth radii. From the VK point of view this would provide 2-3 hours access to the whole of North America and Japan etc. every 12 hours. In time the apogee would drift southwards with consequent increasing satellite time to a maximum of perhaps 10 out of the 12 hour orbit time. About 1000 watts EIRP would be required for effective communication at apogee.

The responsibilities of the groups involved in building Oscar 8 were laid down as follows:

AMSAT Deutschland:

Design major units of spacecraft, i.e., transponder, integrated housekeeping unit including computer.

Build prototype spacecraft.

AMSAT Canada:

Build spacecraft both prototype and flight units.

Project Australis:

Design and build GSE equipment with ground computer etc., provide prototype for test use and 5-6 integrated units for world command stations before launch. Provide software for both spacecraft and GSE computers.

San Bernardino Microwave Society:

Design and build 2304 MHz beacon.

AMSAT HQ:

Provide overall system management, procure components, arrange launch, provide operations management once spacecraft is in orbit.

As will be seen this is an ambitious program and is, of course, subject to future changes and modifications as circumstances may demand. The planned spacecraft is, however, a logical expansion of the AMSAT-Oscar programme and we believe within the capabilities of the international participants given reasonable fortune and support.

On a personal note I would like to thank sincerely Larry Kayser VE3QB, Perry Klein K3JTE, Tom Clark WA3LND and Jan King W3GEY amongst many others who made the author so welcome and provided the hospitality for which the W and VE amateurs are so well known. In addition, I would like to thank the Executive and Divisions of the WIA whose faith in Project Australis and the Oscar programme made my trip possible. I hope the end justifies the means.

NOTES ON WASHINGTON AND OTTAWA

As might be imagined, the author was very interested in amateur radio operation in North Eastern US and Southern Canada during his recent visit. Due to commitments, listening was limited to Oscar passes and FM operation whilst mobile. The amount of traffic through the Oscars, particularly mode B on A07, was incredible to a listener used to Southern Australian conditions. At one stage 10 call areas were counted in as many minutes, all on SSB. The number of European countries available to a VE3 just serves to highlight the lack of Oscar activity in the South East Asian countries within our range. It also serves to emphasise just how much a high altitude satellite such as Oscar 8 would mean to VHF in VK. Some measure of the impact of A07 and 6 on Regions 1 and 2 can be gauged by the number of articles on satellite subjects appearing in the amateur press, but the effect on a stranger first-hand is a little overwhelming. They sound like an open 20m in a contest. This activity is also reflected in the number of amateurs joining AMSAT, currently running in the order of 80 per week! VKs are reminded that AMSAT dues will rise from US\$5 to US\$10 per annum on July 1st so if you have an interest in satellites join NOW. Life membership, a real bar-